

(A) *Amendments*

*In the Specification:*

Please substitute the following paragraphs/sections for the pending paragraphs/sections.

- Substitute the pending paragraph beginning at page 28, line 25, with the following paragraph:

a1  
The teachings of the present invention can be combined with the vector modulation scheme disclosed in commonly owned and concurrently filed U.S. Patent Application No. 09/538,519, entitled "Vector Modulation System and Method for Wideband Impulse Radio Communications," and disclosed in U.S. Provisional Application No. 60/169,765, filed December 9, 1999, entitled, "System and Method for Impulse Radio Vector Modulation," each of which is incorporated herein by reference in its entirety. For example, in vector modulation, each pulse is modulated into one of a plurality of different time positions spanning a cycle of a pulse interval. Using the teachings of the present invention, each vector modulated (i.e., time positioned) pulse can be one of two types of pulses (i.e., a first type of pulse, and a second type of pulse that is substantially the inverse of the first type of pulse). In another example, each vector modulated pulse can be one of four types of pulses (i.e., a first type of pulse, a delayed first type of pulse, a second type of pulse that is substantially the inverse of the first type of pulse, and a delayed second type of pulse that is substantially the inverse of the delayed first type of pulse). The result is that additional data states, and thus faster data speeds, can be realized through such a combination of modulation schemes.

- cont  
a1
- Substitute the pending paragraph beginning at page 43, line 1, with the following paragraph:

q2

The impulse radio receivers of the present invention use multiple correlators, wherein one or more correlators are used to detect data and one or more correlators are used to synchronize the receiver with a received impulse radio signal. Additional details and uses of multiple correlators are disclosed in commonly owned and concurrently filed U.S. Patent Application No. 09/537,264, entitled "System and Method Utilizing Multiple Correlator Receivers in an Impulse Radio System," which is incorporated herein by reference in its entirety.

- Substitute the pending paragraph beginning at page 43, line 9, with the following paragraph:

q3

The impulse radio receivers of the present invention lock onto and acquire impulse radio signals. In one embodiment, this can be accomplished by comparing a template pulse train with a received impulse radio signal to obtain a comparison result, performing a threshold check of the comparison result, and locking on the received impulse radio signal if the comparison result passes the threshold check. Additionally, a quick check using the template pulse train and an additional received impulse radio signal can be performed. Further, a synchronization check of a further received impulse radio signal can be performed. Moreover, a command check of command data of the impulse radio signal can be performed. Additional details of systems and methods for fast locking and acquiring impulse radio signals are disclosed in commonly owned and concurrently filed U.S. Patent

pen 4  
a3

Application No. 09/538,292, entitled "System for Fast Lock and Acquisition of Ultra-Wideband Signals," which is incorporated herein by reference in its entirety.

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✓  
- Substitute the pending paragraph beginning at page 46, line 28, with the following paragraph:

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a4

Methods of implementing multiple data states can also be found in commonly owned U.S. Patent Application No. 09/538,519, entitled "Vector Modulation System and Method for Wideband Impulse Radio Communications," which has been incorporated by reference above.

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✓  
- Substitute the pending paragraph beginning at page 71, line 19, with the following paragraph:

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a5

Further details and examples of lock loops and gain control can be found in commonly owned related U.S. Patent Application No. 09/538,519, entitled "Vector Modulation System and Method for Wideband Impulse Radio Communications," and U.S. Patent Application No. 09/538,292, entitled "System and Method for Impulse Radio Acquisition and Lock", both of which have been incorporated by reference above.